In the Claims:

Claims 1-28 (Canceled)

29. (New) A ruthenium film, comprising:

a ruthenium layer having a stratified oxygen concentration.

30. (New) A ruthenium film as recited in claim 29, wherein the ruthenium layer has an oxygen concentration profile that substantially approximates a step function.

31. (New) A ruthenium film as recited in claim 30, wherein the oxygen concentration profile is relatively high from a surface of an underlayer to a predetermined thickness, the oxygen concentration profile rapidly decreases at the predetermined thickness, and the oxygen concentration profile is relatively low and substantially constant from the predetermined thickness toward a top surface of the ruthenium film.

32. (New) An integrated circuit device, comprising:

a lower electrode on a substrate;

a dielectric layer on the lower electrode; and

an upper electrode on the dielectric layer;

wherein at least on of the lower electrode and the upper electrode comprises a ruthenium film having a stratified oxygen concentration.

33. (New) An integrated circuit device as recited in claim 32, wherein the ruthenium film has an oxygen concentration profile that substantially approximates a step function.

34. (New) An integrated circuit device as recited in claim 33, wherein the concentration profile is relatively high from a surface of an underlayer to a predetermined

thickness, the oxygen concentration profile rapidly decreases at the predetermined thickness, and the oxygen concentration profile rapidly decreases at the predetermined thickness, and the oxygen concentration profile is relatively low and substantially constant from the predetermined thickness toward a top surface of the ruthenium film.

35. (New) A method of forming a ruthenium film, comprising:

forming a ruthenium film having a stratified oxygen concentration

36. (New) The method as recited in claim 35, wherein the oxygen concentration profile substantially approximates a step function.

37. (New) The method as recited in claim 36, wherein the oxygen concentration profile is relatively high from a surface of an underlayer to a predetermined thickness, the oxygen concentration profile rapidly decreases at the predetermined thickness, and the oxygen concentration profile is relatively low and substantially constant from the predetermined thickness toward a top surface of the ruthenium film.

38. (New) The method as recited in claim 37, wherein forming the ruthenium film comprises:

reacting a ruthenium source gas and oxygen at a first pressure and at a first oxygen gas flow rate to deposit ruthenium on a substrate; and

reacting the ruthenium source gas and oxygen at a second pressure and at a second oxygen gas flow rate to deposit ruthenium on the substrate, wherein at least one of the second pressure and the second oxygen gas flow rate is less than the first pressure and the first oxygen gas flow rate, respectively.

39. (New) The method as recited in claim 38, wherein the first oxygen gas flow rate is in a range of about 500 sccm to 2000sccm and the second oxygen gas flow rate is in a range of about 10 sccm to 300 sccm.

40. (New) The method as recited in claim 37, wherein forming the ruthenium film comprises:

reacting a ruthenium source gas and oxygen to deposit ruthenium on a substrate; and

changing at least one of a pressure, an oxygen gas flow rate, and a substrate temperature during reacting the ruthenium source gas and oxygen.

41. (New) The method as recited in claim 40, wherein changing at least one of the pressure, the oxygen gas flow rate, and the substrate temperature comprises:

decreasing the oxygen gas flow rate from a range of about 500 sccm to 2000 sccm to a range of about 10 sccm to 300 sccm.

42. (New) The method as recited in claim 37, wherein wherein forming the ruthenium film comprises:

forming the ruthenium film on a substrate such that the ruthenium nucleation rate is greater than the ruthenium growth rate; and

forming the ruthenium film on the substrate such that the ruthenium growth rate is greater than the ruthenium nucleation rate.

43. (New) A method of forming an integrated circuit device, comprising:

forming a lower electrode on a substrate;

forming a dielectric layer on the lower electrode; and

forming an upper electrode on the dielectric layer;

wherein at least one of the lower electrode and the upper electrode comprises a ruthenium film having a stratified oxygen concentration.

44. (New) The method as recited in claim 43, wherein the oxygen concentration profile substantially approximates a step function.

45. (New) The method as recited in claim 44, wherein the oxygen concentration profile is relatively high from a surface of an underlayer to a predetermined thickness, the oxygen concentration profile rapidly decreases at the predetermined thickness, and the oxygen concentration profile is relatively low and substantially constant from the predetermined thickness toward a top surface of the ruthenium film.

46. (New) The method as recited in claim 45, wherein forming the lower elecrode and/or forming the upper electrode comprises:

reacting a ruthenium source gas and oxygen at a first pressure and at a first oxygen gas flow rate to deposit ruthenium on the substrate; and

reacting the ruthenium source gas and oxygen at a second pressure and at a second oxygen gas flow rate to deposit ruthenium on the substrate, wherein at least one of the second pressure and the second oxygen gas flow rate is less than the first pressure and the first oxygen gas flow rate, respectively.

47. (New) The method as recited in claim 46, wherein the first oxygen gas flow rate is in the range of about 500 sccm to 2000 sccm and the second oxygen gas flow rate is in a range of about 10 sccm to 300 sccm.

48. (New) The method as recited in claim 45, wherein forming the lower electrode and/or forming the upper electrode comprises:

reacting a ruthenium source gas and oxygen to deposit ruthenium on the substrate; and

changing at least one of a pressure, an oxygen gas flow rate, and a substrate temperature during the step of reacting the ruthenium source gas and oxygen.

49. (New) The method as recited in claim 48, wherein changing at least one of the pressure, the oxygen gas flow rate, and the substrate temperature comprises:

decreasing the oxygen gas flow rate from a range of about 500 sccm to 2000 sccm to a range of about 10 to 300 sccm.

50. (New) The method as recited in claim 45, wherein forming the lower electrode and/or forming the upper electrode comprises:

forming the ruthenium film on the substrate such that the ruthenium nucleation rate is greater than the the ruthenium growth rate; and

forming the ruthenium film on the substrate such that the ruthenium growth rate is greater than the ruthenium nucleation rate.